

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF  
SOUTH CAROLINA**

**DOCKET NO. 2019-224-E**

**DOCKET NO. 2019-225-E**

In the Matter of:	)	
	)	
South Carolina Energy Freedom Act	)	<b>REPLY COMMENTS OF DUKE</b>
(House Bill 3659) Proceeding Related to	)	<b>ENERGY CAROLINAS, LLC AND</b>
S.C. Code Ann. Section 58-37-40 and	)	<b>DUKE ENERGY PROGRESS, LLC</b>
Integrated Resource Plans for Duke	)	<b>IN SUPPORT OF COMMISSION</b>
Energy Carolinas, LLC and Duke Energy	)	<b>ACCEPTANCE OF MODIFIED 2020</b>
Progress, LLC	)	<b>INTEGRATED RESOURCE PLANS</b>

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Pursuant to S.C. Code Ann. § 58-37-40(C)(3) and Order No. 2021-447 issued by the Public Service Commission of South Carolina (“PSCSC” or, the “Commission”), Duke Energy Carolinas, LLC (“DEC”) and Duke Energy Progress, LLC (“DEP,” and together with DEC, the “Companies”) hereby submit these Reply Comments in support of their respective Modified 2020 Integrated Resource Plans (“Modified 2020 IRPs” or “Modified IRPs”) and in response to the review of DEC’s and DEP’s Modified 2020 IRPs filed by the South Carolina Office of Regulatory Staff (“ORS”) as well as comments filed by the Carolinas Clean Energy business Association, South Carolina Coastal Conservation League, Southern Alliance for Clean Energy, Upstate Forever, Natural Resources Defense Council, and Sierra Club (together, the “Clean Energy Intervenors”) and by Vote Solar.

These Reply Comments further establish that the Companies’ Modified 2020 IRPs both comply with the requirements of Act 62 and the modifications required by the Commission in Order No. 2021-447. Consistent with S.C. Code Ann. § 58-37-40(C)(3) and ORS’s finding that the Modified IRPs meet the statutory requirements for acceptance, the Companies respectfully request the Commission accept DEC’s and DEP’s Modified

2020 IRPs within the statutory timeframe (on or before December 25, 2021) and allow the Companies to focus on the important resource planning efforts that are already underway and which will be presented to the Commission in the Companies' next comprehensive IRPs under Act 62.

Notably, as addressed in the Companies' Petition to Request the Commission to Hold a Joint Hearing with the North Carolina Utilities Commission to Develop a Carbon Plan ("Petition for Joint NC/SC Hearing") now before the Commission in Docket No. 2021-349-E, the Companies are already pursuing the next phase of resource planning to serve their Carolinas customers in response to North Carolina Session Law 2021-165 ("HB 951"), which mandates the Companies file and the North Carolina Utilities Commission ("NCUC") approve a first-of-its-kind Carbon Plan in 2022. As further addressed in these Reply Comments and in the Petition for Joint NC/SC Hearing, the Carbon Plan proceeding in 2022 will be foundational to the Companies' next comprehensive IRPs. Accordingly, the Companies have requested that the Carbon Plan be heard in a joint proceeding with this Commission and the NCUC. Once that Carbon Plan is approved in late December 2022 (by the NCUC) and, if this Commission grants the Petition, January 31, 2023 (by the PSCSC as proposed by the Companies), it will inform the next round of comprehensive IRPs filed in both states, now targeted for 2023.

## **I. INTRODUCTION**

In Order No. 2021-447, the Commission found that Act 62 requires a utility to select a preferred plan—*i.e.* the resource plan portfolio it intends to pursue as most reasonable and prudent at this time. Because the Companies did not select a preferred portfolio as part of their original 2020 IRPs, filed September 1, 2020 ("2020 IRPs"), the

Commission determined the Companies' 2020 IRPs were deficient and ordered the Companies to "modify their 2020 IRPs to identify a preferred portfolio."<sup>1</sup>

The Companies' Modified 2020 IRPs present nine new "SC Supplemental Portfolios" that were developed based on the six Portfolios initially presented in the Companies' 2020 IRPs, as updated to reflect certain limited updated modeling assumptions required by Order No. 2021-447. As directed by the Commission, the Companies also selected a preferred portfolio—SC Supplemental Portfolio C1—from the nine SC Supplemental Portfolios that will serve as the base set of resource planning assumptions for this proceeding and to guide and inform future proceedings before this Commission until future IRPs are filed with the Commission.

Overall, the Modified 2020 IRPs demonstrate the Companies' strong commitment to customer affordability and system reliability, while at the same time prioritizing near-term carbon reduction through additional energy efficiency, implementation of significant new solar and battery storage and efficient new natural gas resources. In selecting Portfolio C1, which aims to implement the earliest practicable retirement of the Companies' coal fleets, as the preferred portfolio, the Companies are preparing for more stringent environmental regulations, the growing potential for carbon policy, and the ongoing constraints on coal supply. This portfolio prudently mitigates future risks on behalf of customers while ensuring system reliability and balancing affordability.

Portfolio C1 is also consistent with the desires of the strong majority of intervenors and stakeholders for the Companies to pursue a diverse mix of cleaner energy technologies, such as solar, wind, storage, and natural gas, while continuing to pursue near-term carbon

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<sup>1</sup> Order No. 2021-447, at 85.

emission reductions in their planning process. These goals align with Duke Energy's climate goals, the desire of customers and the Companies' investors for DEC and DEP to transition their generation fleets to less carbon-intensive resources, as well as recent policy directives in North Carolina to pursue and achieve carbon emissions reductions during the planning period. Accordingly, as detailed in the Modified 2020 IRPs, SC Supplemental Portfolio C1 is the most reasonable and prudent plan as it provides for the earliest practicable retirement of the Companies' coal-fired generating fleet across the Carolinas while ensuring resource adequacy and power system reliability, appropriately balancing customer affordability and least cost considerations, considering commodity price risks, future environmental risks, and planning for an increasingly diverse generation supply to serve customers' energy needs.

The Companies are committed to the continued development of SC Supplemental Portfolio C1 as appropriately informing their base planning assumptions for future IRP Updates. Importantly, the Modified 2020 IRPs are backward-looking documents in that they utilize inputs—including technology costs and market conditions—that were current at the time the Companies originally developed their 2020 IRPs and are now outdated by almost two years. Given the limited nature of the ordered changes to be included in the SC Supplemental Portfolios, it is important to view the Modified 2020 IRPs as a “snapshot in time” and the Companies' selection of the preferred Portfolio C1 as directional in nature, recognizing that conditions such as technology costs and market conditions have changed since the IRP inputs were developed in the spring of 2020 and will continue to change. Commission approval of the Modified 2020 IRPs will allow the Companies to move forward with forward-looking refinements to their resource planning process, both by incorporating updated inputs as part of the annual IRP update process and by incorporating

updated analyses and additional modifications that the Commission directed to be addressed in the Companies' next comprehensive IRPs. Future updates to technology costs, market conditions, and policy changes will naturally result in changes to the resource mixes as the IRP planning process under Act 62 continues.

Importantly, ORS found that the Companies' Modified 2020 IRPs meet Act 62's statutory requirements and were "sufficient" to comply with the modifications directed by Order No. 2021-447.<sup>2</sup> In contrast, intervenors argue that the Commission should reject the Companies' Modified 2020 IRPs and require them to apply each of the Commission's modifications to every single Supplemental SC resource portfolio included in the Modified 2020 IRPs. These parties' reading of the Commission's Order is overbroad. They also fail to recognize that Portfolios D-F heavily rely upon emerging technologies that are not commercially available or currently expected to be economic within the 2020 resource planning window and that will require constructive regulatory and policy support to justify meaningful consideration as a preferred portfolio in future IRPs. Accordingly, Portfolios D-F would not be prudent for use as the Companies' preferred portfolio "base planning assumptions" to reliably plan and operate the DEC and DEP systems at this time.

The Companies also recognize intervenors' desire for DEC and DEP to move forward with planning for coal retirements and replacement generation. While the Companies continue to view Vote Solar's analysis and arguments about stranded asset risk associated with planning for new natural gas generation as fundamentally flawed, the Companies generally agree with Vote Solar that greater resource planning focused on executable coal retirement planning, replacement generation, and longer-term carbon

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<sup>2</sup> S.C. Code Ann. § 58-37-40(C)(3) (directing ORS to "submit a report to the Commission assessing the sufficiency of the revised filing.").

emission reductions is appropriate for *future* IRPs. Accordingly, the Companies plan to develop a carbon compliance plan to address how the preferred portfolio aligns with the Companies' longer-term net-zero emissions by 2050 goals to be reasonable to include in the Companies' next comprehensive IRPs targeted for 2023 in compliance with Act 62.<sup>3</sup> For 2022, the Companies believe this recommendation aligns with the Companies' recent Petition to the Commission to jointly participate with the NCUC in hearing the Companies' Carbon Plan required under North Carolina HB 951.<sup>4</sup>

For all of these reasons, and as described more fully herein, the Companies submit that their 2020 Modified IRPs comply with Commission Order No. 2021-447 and should be approved so that the Companies may shift focus to the forward-looking planning required by Act 62, which is necessary to ensure that the Companies are able to continue to reliably and affordably serve customers' future energy needs while reducing system carbon emissions.

## II. THE COMPANIES' MODIFIED 2020 IRPs SHOULD BE APPROVED

### A. DEC's and DEP's Modified IRPs Comply with Act 62 and the Commission's Order

#### 1. *The Companies Modeled Each of the Modifications Required in the Commission's Order*

Order No. 2021-447 directed the Companies to modify certain of their modeling assumptions and, thereafter, select a preferred resource portfolio from the various

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<sup>3</sup> As explained in the Joint Petition filed by the Companies in Docket No. 2021-349-E, the Companies intend to defer the filing of their next comprehensive IRPs until 2023, rather than file the IRPs in 2022 as previously planned. Filing the next comprehensive IRPs in 2023 complies with South Carolina's resource planning requirements under Act 62. See S.C. Code Ann. §58-37-40(A) (requiring the Companies to prepare and submit an IRP to the PSCSC at least every three years).

<sup>4</sup> Joint Petition of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC to Request the Commission to Hold a Joint Hearing with the North Carolina Utilities Commission to Develop Carbon Plan, Docket 2021-349-E (filed Nov. 9, 2021) ("Petition for Joint NC/SC Hearing on HB 951 Carbon Plan").

portfolios presented in their respective Modified 2020 IRPs. In compliance with this Order and the IRP framework established through Act 62, the Companies developed nine SC Supplemental Portfolios incorporating the directives in the Commission's Order. In particular, Portfolios A1, B1, C1, D1, E1, and F1 incorporate the Commission's directives to (1) assume a 750 MW annual limitation on the interconnection of solar and storage resources; (2) account for the effect of the December 2020 Investment Tax Credit ("ITC") extension on solar development; (3) model future solar additions as single-axis tracking; and (4) include a \$38/MWh solar power purchase agreement ("PPA") as a selectable resource. Portfolios A2, B2, and C2 incorporate each of those modeling updates in addition to the Commission's directives to (1) revise natural gas price forecast methodology to reflect 18 months of market price before transitioning over an 18-month period to fundamental forecast; and (2) utilize alternate battery storage cost assumptions to reflect the NREL Annual Technology Baseline ("ATB") Low forecast. In taking this approach, the Companies addressed each of the modifications that the Commission directed the Companies incorporate into their respective Modified 2020 IRPs.<sup>5</sup>

ORS, with the assistance of its expert consultant, J. Kennedy and Associates, Inc. ("Kennedy and Associates"), conducted a thorough evaluation of the Companies' Modified 2020 IRPs, assessing whether the Companies sufficiently addressed the requirements set forth in Order No. 2021-447. After reviewing the detailed information included in the Modified 2020 IRPs as well as the additional information provided by the Companies through discovery, ORS concluded that the "Compan[ies] sufficiently met the

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<sup>5</sup> As directed by the Commission, the Companies also prepared additional load forecast scenarios to serve as a sensitivity to the base cases (A1, A2, B1, B2), including high and low scenarios that account for economic and other types of uncertainty. No intervenor objected to the Companies' approach.

requirements specified in the Order[.]”<sup>6</sup> Because the Companies, in fact, incorporated each of the Commission’s directives to modify modeling assumptions in their Modified 2020 IRPs and in light of ORS’s finding of sufficiency, the Companies respectfully request that the Commission approve the Modified IRPs and find that they have complied with the modeling requirements of Order No. 2021-447.

**2. *The Companies’ Decision Not to Create Portfolios D2, E2, and F2 is Reasonable and Does Not Contradict the Commission’s Order***

As detailed in DEC’s and DEP’s respective 2020 Modified IRPs, SC Supplemental Portfolios A2, B2, and C2 utilize the modified natural gas price forecast methodology articulated by the Commission—relying upon 18 months of market prices before transitioning over the following 18 months to the average of two fundamentals-based forecasts—and NREL ATB Low battery storage cost estimates.<sup>7</sup> Addressing this approach, ORS found that the Companies “revised [their] gas price forecasting assumptions and sufficiently complied with the Commission’s requirements.”<sup>8</sup> Likewise, ORS concluded that the Companies “met the requirements of the commission’s order to model battery price forecasts using the NREL ATB Low forecast[.]”<sup>9</sup> Consistent with ORS’s findings, the Modified IRPs meet the requirements of Order No. 2021-447.

The Clean Energy Intervenors and Vote Solar, on the other hand, assert that the Companies failed to comply with the Commission’s Order by choosing not to also develop Portfolios D2, E2, and F2, arguing that the Companies should have incorporated the modified natural gas price forecast methodology and NREL ATB Low battery storage costs

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<sup>6</sup> ORS DEC Report, at 4; ORS DEP Report at 4.

<sup>7</sup> DEC Modified 2020 IRP, at 7; DEP Modified 2020 IRP, at 6-7.

<sup>8</sup> ORS DEC Report, at 14; ORS DEP Report, at 14.

<sup>9</sup> ORS DEC Report, at 18; ORS DEP Report, at 18.



for *every single* SC Supplemental Portfolio. They suggest that the Companies' failure to do so resulted in an overstatement of the costs of the deep decarbonization portfolios (D1, E1, and F1) that resulted in an artificially increased selection of new gas additions. As explained below, however, these arguments demonstrate a fundamental misunderstanding of the Companies' obligations under Act 62 and Order No. 2021-447, as well as their approach to portfolios D1, E1, and F1.

**a. Neither Act 62 Nor Order No. 2021-447 Limit the Companies' Right to Include Utility-Supported Portfolios in their IRPs**

As a threshold matter, Act 62 does not require the Companies to develop any specific number of resource portfolios as part of their respective IRPs. Instead, Act 62 generally directs utilities to develop "several resource portfolios . . . with the purpose of fairly evaluating the range of demand-side, supply-side, storage, and other technologies and services available to meet the utility's services obligations."<sup>10</sup> Likewise, the Commission's Order does not prescribe which portfolios the Companies must include in their Modified 2020 IRPs or dictate to which portfolios the amended modeling assumptions should apply. Certainly, the Companies could have opted to include only a subset of the September 2020 IRP portfolios in the SC Supplemental Portfolios and Analysis and there is nothing in Act 62 or Order No. 2021-447 that precludes the Companies from including additional utility-supported portfolios in their Modified 2020 IRPs. As addressed further below, consistent with historic integrated resource planning and Act 62, an integrated resource plan is *the utility's* plan for reliably and cost-effectively meeting current and future capacity needs. Thus, the utility must be afforded discretion to present portfolios and

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<sup>10</sup> S.C. Code Ann. § 58-37-40(B)(1)(e).

analysis that it believes are reliable, reasonable, informative, and can best serve customers. To that end, the Order did not mandate that the Companies could *only* present six modified portfolios. It is worth noting that Dominion Energy South Carolina (“Dominion”)—whose initial IRP under Act 62 was rejected by the Commission—presented exclusively new portfolios in its Modified IRP, which was approved by the Commission.<sup>11</sup>

Given the limited time permitted for preparation of the Modified IRPs, the Companies focused on using the existing portfolios from the September 2020 IRPs and incorporating the assumptions required by Order No. 2021-447 to show the impact of those modeling changes. The Companies transparently developed portfolios with labels ending “1” that reflected modified inputs and assumptions that DEC and DEP determined to be reasonable and appropriate for resource planning purposes, as well as the portfolios with labels ending “2” that fully incorporated the Commission-ordered inputs but did not align with base planning inputs and include assumptions that the Companies determined would be more appropriate for inclusion as sensitivities to the selected portfolio. Because of the restrictive time constraints, resources were prioritized to develop and evaluate both the “1” and “2” supplemental portfolios for Portfolios A, B, and C, while one iteration of Portfolios D, E, and F, along with the hundreds of scenario and sensitivity analysis runs were conducted.

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<sup>11</sup> *In re South Carolina Energy Freedom Act (House Bill 3659) Proceeding Related to S.C. Code Ann. Section 58-37-40 and Integrated Resource Plans for Dominion Energy South Carolina, Incorporated*, Docket No. 2019-226-E, Order No. 2021-429, at 20 (June 18, 2021) (“DESC Modified 2020 IRP Order”). It is also worth noting that the Commission did not—as Vote Solar seems to suggest—reject the Companies’ 2020 IRPs as they did for Dominion’s initial 2020 IRP under Act 62. *See* Vote Solar Comments, at 7. Accordingly, the Companies appropriately developed supplemental portfolios and analysis that modified their 2020 IRPs. The Companies believe this approach is fully consistent with Act 62 and Order No. 2021-447.

**b. The Clean Energy Intervenors and Vote Solar Fundamentally Misunderstand Portfolios D1, E1, and F1**

As described in the Supplemental Portfolios and Analysis, Portfolios D, E, and F rely on emerging technologies that may not in practice be commercially available or economic within the 2020 resource planning window but rather were developed as a way to highlight the trade-offs of potentially implementing these emerging technologies in the future.<sup>12</sup> As a result, the Modified 2020 IRPs explain that these portfolios are somewhat theoretical or illustrative in nature until meaningful advancements are made in the development of these technologies and maturation of the associated supply chains.

Importantly, the Companies did not perform comprehensive optimizations of these portfolios in the originally filed IRPs, and likewise did not in the Modified 2020 IRPs. Nevertheless, the Modified IRP analysis made the required alterations to the prescribed and resource limited portfolios, such as using higher solar interconnection limits and adjusted costs of solar due to the ITC extensions and the inclusion of the \$38/MWh solar PPA as a selectable resource option. However, the Companies did not perform a wholesale optimization that would have been influenced by a different natural gas price or storage price forecast for the reasons previously stated.

It is important to highlight that Modified 2020 IRPs included robust scenario analysis to evaluate each portfolio against both the Companies' and the Commission's modified natural gas price forecasting methodology.<sup>13</sup> This scenario analysis demonstrates the risks and opportunities of each of the modified portfolios against a larger range of natural gas price uncertainty. Performing the extensive scenario analysis, with the six

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<sup>12</sup> DEC Modified 2020 IRP, at 12; DEP Modified 2020 IRP, at 12.

<sup>13</sup> DEC Modified 2020 IRP, at 85-94; DEP Modified 2020 IRP, at 84-93.

natural gas price forecasts, and the three carbon price forecasts, resulted in 18 scenarios for which each portfolio was tested. The scenario analysis applied across the nine portfolios evaluated was comprised of a total of 162 production cost model simulations, making for a detailed and robust minimax regret analysis, which ORS determined sufficiently complied with the Commission's Order.<sup>14</sup>

**B. Portfolio C1 Should Be Approved as the Most Reasonable and Prudent Plan**

**1. *Portfolio C1 is the Most Reasonable and Prudent Plan and appropriately Balances Customer Cost and Resource Planning Risk***

Order No. 2021-447 determined that the Companies' 2020 IRPs were "deficient because of Duke's failure to select a preferred resource plan" and, accordingly, the Commission found that the 2020 IRPs did not satisfy the requirements of § 58-37-40(C)(2).<sup>15</sup>

As directed by the Order, the Companies' 2020 Modified IRPs each selected SC Supplemental Portfolio C1 as "the most reasonable and prudent means of meeting the electrical utility's energy and capacity needs" at the time the plan is reviewed. Portfolio C1 achieves significant near-term carbon reductions relying on technologies that are established and economic today, based on planning assumptions that create credible modeling results. Portfolio C1 is modeled to plan for a rapid and significant reduction in carbon emissions by retiring all DEC's and DEP's coal-fired capacity (totaling approximately 10,000 MW) by 2030 and adding a diverse mix of solar, wind, storage and gas to meet customers' electricity needs over the planning horizon.

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<sup>14</sup> ORS DEC Report, at 18-19; ORS DEP Report, at 18-19.

<sup>15</sup> Order No. 2021-447, at 8, 85.

As ORS notes, Portfolio C1 is not the least cost plan compared to the other SC Supplemental Portfolios, resulting in an average bill impact of, according to ORS, approximately \$8 more per month for DEC and \$2 more per month for DEP than the cost of Portfolio A1. However, Portfolio C1 strikes an appropriate balance of accelerating carbon reductions in the near term but doing so in a cost-effective manner. It is intuitive that “traditional” least cost planning shown in Portfolios A1/A2 (assuming no future carbon price) and B1/B2 (assuming a future carbon price) will result in lower costs for customers, compared to the costs associated with retiring all coal by 2030, which Portfolio C1 assumes. As ORS points out, the present value revenue requirements (“PVRR”) of Portfolio C1 is \$3.3 Billion more (7.6% greater) (as compared to Portfolio A1) for DEC and \$1.3 Billion (3.7% greater) for DEP<sup>16</sup>; however, Portfolio C1 also achieves materially greater carbon reductions (66% by 2030 compared to 2005 baseline levels) due to more accelerated coal retirements being replaced with additional lower carbon and zero carbon resources, as compared to Portfolio A1 (56% by 2030 compared to 2005 baseline levels). Planning for the transition of the Companies’ generation fleet has become increasingly important given the growing potential for more stringent environmental regulations, challenges to coal supply-chain and evolving national carbon policy.

Portfolio C1 also performs well in various gas and carbon price scenarios and sensitivities and reduces risk around coal supply constraints.<sup>17</sup> It also aligns with Duke Energy’s climate goals to accelerate coal retirements and the Companies’ system-wide energy transition, which must now be reconciled with North Carolina HB 951’s recent

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<sup>16</sup> ORS DEC Report, at 9; ORS DEP Report, at 9.

<sup>17</sup> DEC Modified 2020 IRP, at 21-22; DEP Modified 2020 IRP, at 21-22.

direction for the Companies to plan to achieve 70% carbon reductions in a least cost manner by 2030. The Companies believe that their forward-thinking planning approach presented in SC Supplemental Portfolio C1 is most reasonable and prudent at this time in that it will mitigate risk on behalf of customers in the long term relative to a reactionary planning approach that does not take into account the impact of an evolving climate landscape from the perspective of customers, state and federal regulatory bodies, and capital markets.

Based on the range of estimated customer cost impacts and associated anticipated carbon reductions, Portfolio C1 represents a balanced approach to planning for more near-term carbon reductions in a prudent and responsible manner while also prioritizing customer affordability and reliability of service.<sup>18</sup>

**2. *The Companies' Selection of Portfolio C1 Represents the Utility-Supported Most Reasonable and Prudent Plan and Does Not Contradict the Commission's Order***

The Clean Energy Intervenors and Vote Solar take issue with the Companies' selection of Portfolio C1 as their preferred portfolio because it does not incorporate the natural gas and NREL ATB Low battery storage modifications identified in Order No. 2021-447. The Clean Energy Intervenors argue that the Commission should reject Portfolio C1 as the preferred plan, and Vote Solar similarly suggests that the Companies should not be allowed to select a preferred portfolio that does not implement all of the Commission's required modifications. To the contrary, while Order No. 2021-447 required the Companies to revise their portfolios to incorporate modified modeling assumptions, it did not require the Companies to only present those portfolios or limit the

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<sup>18</sup> While ORS found that the Companies "sufficiently met the Commission's requirement to select a preferred resource plan in the Modified IRP[s,]" it did not opine on the reasonableness or prudence of selecting Portfolio C1 as the preferred plan. ORS DEC Report, at 9-11; ORS DEP Report, at 9-11.

Companies to selecting a preferred portfolio that adopts each of those revised modeling assumptions. Indeed, as highlighted above, Act 62 specifically contemplates that a utility will develop a variety of resource portfolios that include, among other things, an evaluation of “low, medium, and high cases for the adoption of renewable energy and cogeneration, energy efficiency, and demand response measure, including . . . sensitivity analyses related to fuel costs, environmental regulations, and other uncertainties and risks.”<sup>19</sup>

By incorporating the Commission-directed modifications for fuel and battery storage costs into their A2, B2, and C2 Portfolios, the Companies were able to robustly evaluate the impact of those cost sensitivities as compared to their A1, B1, and C1 Portfolios in compliance with Order No. 2021-447 and in keeping with the requirements of Act 62. As explained in more detail in the Companies’ Modified 2020 IRPs, the assumptions in Portfolio C1 are more reasonable and appropriate base planning assumptions than the more aggressive cost assumptions incorporated into Portfolios A2, B2, and C2. Specifically, the Companies view the use of a low battery cost forecast—which is, by definition, less probable than a moderate forecast—as better suited for sensitivity or scenario analysis rather than a base case planning assumption.<sup>20</sup> Similarly, the Companies explained that a natural gas forecast that incorporates an early transition to a fundamental fuel forecast would be inconsistent with actual market information as well as the way fuel procurement is planned, managed, and accounted for, and thus would also be better suited as a price sensitivity and not a prudent base case assumption.

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<sup>19</sup> S.C. Code Ann. § 58-37-40(B)(3)(e).

<sup>20</sup> DEC Modified 2020 IRP, at 20; DEP Modified 2020 IRP, at 19.

Critically, as this Commission is well aware, DEC and DEP as electric utilities are solely responsible and accountable for planning and operating their systems to ensure customers receive reliable service. Indeed, the Companies are the only parties to these proceedings that are regulated by federal and state law to ensure customers in South Carolina and North Carolina receive reliable power at just and reasonable rates. It follows that the Companies must have the autonomy to plan and operate their systems to provide reliable electric service to their customers—subject to Commission oversight—and, in this proceeding, to present portfolios to the Commission that the Companies’ management, resource planning experts, and system operators determine are the most reasonable and prudent to meet customers’ future energy needs. The Companies’ position is supported by Act 62, which provides that the Commission “shall approve an electrical utility’s [IRP] if the Commission determines that the proposed [IRP] represents the most reasonable and prudent means of meeting the electrical utility’s energy and capacity needs as of the time the plan is reviewed.”<sup>21</sup> While the Commission has the right to order modifications or even to reject a utility’s IRP, the utility is ultimately and solely responsible for developing and executing the IRP and is accountable to the Commission for delivering reliable and affordable service. As found by the Commission to be required by Act 62, the Companies have proposed Portfolio C1 as responsive to the Commission’s directive to select a preferred portfolio and represents the most reasonable and prudent portfolio as of this IRP snapshot in time.

The Companies’ Modified 2020 IRPs also highlighted that the selection of Portfolio C1 should be viewed as directional in nature, demonstrating the Companies’ desire to

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<sup>21</sup> S.C. Code Ann. § 58-37-40(C)(2).



closely examine pathways to significant, near-term carbon reductions.<sup>22</sup> To be clear, the Companies anticipate that the need for and timing of new generation resources in this portfolio will evolve as more current inputs—as opposed to the backward-looking 2020 inputs used to prepare the Modified 2020 IRPs—are taken into account and further modifications from Order No. 2021-447 are incorporated into the Companies’ future IRPs.

In sum, Portfolio C1 is the most reasonable and prudent resource plan achieving significant, immediate, and cost-effective reduction in carbon and carbon associated risks while balancing reliability of service and the corresponding cost to customers.

**C. The Companies Agree Preferred Portfolio C1 Should Presumptively be Used for Other Future South Carolina Legal and Regulatory Proceedings**

ORS, the Clean Energy Intervenors, and Vote Solar each raised as a concern the Companies’ statement that its selection of Portfolio C1 as the preferred plan was “limited to fulfilling the specific directive to identify the most reasonable and prudent means for meeting the Company’s long-term energy and capacity needs and such selection is not intended to dictate its use as the appropriate plan for all other legal and regulatory purposes that integrated resource planning serves.”<sup>23</sup> To address these concerns, the Companies agree that Portfolio C1 should be used as the base planning assumption for other legal and regulatory proceedings before the Commission.

The Companies’ primary point of emphasis in including this qualifier to selecting Portfolio C1 as its preferred plan was that adjustments may be appropriate for calculating avoided costs under PURPA or for evaluating the cost-effectiveness of EE/DSM

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<sup>22</sup> DEC Modified 2020 IRP, at 15; DEP Modified 2020 IRP, at 14.

<sup>23</sup> DEC Modified 2020 IRP at 22; DEP Modified 2020 IRP, at 21.

programs.<sup>24</sup> As ORS suggested, if changes in assumptions or circumstances occur, those can be considered as adjustments to the preferred portfolio at the time of the future proceeding.<sup>25</sup> In particular, the Companies agree with ORS that in future avoided cost proceedings, the Companies should use their preferred portfolio but should adjust the preferred portfolio to exclude the explicit cost of carbon as it did in the sensitivity analysis presented in the Modified IRPs.<sup>26</sup>

The Companies also reject Vote Solar's contention that the Modified 2020 IRPs' now-rescinded qualifier to using of Portfolio C1 as its preferred plan for all South Carolina legal and regulatory purposes was somehow intended to undercut the Companies' commitment to Portfolio C1 or to "obscure[] the actual resource portfolio being pursued by the Companies."<sup>27</sup> The Companies agree that selection of Portfolio C1 as their preferred plan contemplates the Companies' commitment to "realizing the selected plan" and that the preferred plan should consistently be used as a basis for forecasting new resources.<sup>28</sup> The Modified 2020 IRPs were transparent that Portfolio C1 was directional in nature and that further resource planning, including updating their 2020 coal retirement studies, as ordered by the Commission in Order No. 2021-447, is needed in order to execute the longer-term major unit retirements and new replacement resources contemplated in Portfolio C1.

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<sup>24</sup> DEC Modified 2020 IRP, at 23; DEP Modified 2020 IRP, at 22.

<sup>25</sup> ORS DEC Report, at 10; ORS DEP Report, at 9.

<sup>26</sup> *Id.*

<sup>27</sup> Vote Solar Comments, at 10.

<sup>28</sup> Vote Solar Comments, at 22.

### III. RESPONSE TO OTHER INTERVENOR CRITICISMS

#### A. The Companies Appropriately Applied the Capital and Fixed Operating and Maintenance Costs from the ATB Low Forecast

Order No. 2021-447 required the Companies to apply the NREL ATB Low Forecast in their battery storage cost assumptions, as shown in Portfolios A2, B2, and C2. The Clean Energy Intervenors allege that the Companies failed to appropriately apply the capital costs and fixed operating and maintenance (“FOM”) costs from the ATB Low Forecast, resulting in an overbuild of battery capacity and overstatement of the necessary costs.

Contrary to the Clean Energy Intervenor’s assertion, the Companies fully complied with the Commission’s order by directly, and appropriately, applying the NREL Low ATB capital and FOM costs in Portfolios A2, B2, and C2 of the Modified IRPs. Because the NREL ATB provided costs on a 2018 real dollar basis, an adjustment was required to escalate these costs to a 2020 real dollar basis in order to ensure all operating and capital costs used throughout the model were on a consistent year basis.

After adjusting for the timing difference of the NREL costs, the Companies simply multiplied the NREL ATB low capital costs, provided in \$/kW, by the usable capacity of the battery to determine the capital cost of the battery modeled in Portfolios A2, B2, and C2. The Companies did not increase the size of the NREL modeled battery to account for depth of discharge or other overbuilds. The Companies concur with Clean Energy Intervenors and Mr. Lucas that the Commission’s order stated the “NREL ATB Low figures appropriately account for depth of discharge and degradation[.]” Consistent with this directive, the Companies used the NREL ATB Low FOM costs, after adjusting for timing differences, directly in Portfolios A2, B2, and C2. Again, the Companies applied the FOM costs to the NREL sized battery without any modifications for depth of discharge

or other overbuild requirements. Notably, even though the NREL ATB Low battery costs were appropriately calculated for inclusion in the Modified IRPs, these cost projections should also be considered a “snapshot in time” as NREL has subsequently raised their projections for the “Low” cost trajectory.<sup>29</sup>

The Clean Energy Intervenors recommend that the Companies should “confirm that [they] did in fact modify [their] battery sizing methodology and use updated capital and fixed O&M costs . . . to comply with the cost structure that is embedded in the NREL ATB costs.”<sup>30</sup> The explanation set forth above satisfies this request: the Companies confirm that they did, in fact, use NREL ATB capital and fixed O&M costs for batteries modeled in Portfolios A2, B2, and C2 consistent with the Commission’s Order.

**B. The Volume of \$38/MWh PPAs Assumed in the Modified IRP is Appropriate Based on Historic Experience**

Order No. 2021-447 required DEC and DEP to include in the Modified IRP third-party solar PPAs priced at \$38/MWh as a selectable resource”<sup>31</sup> Accordingly, the Companies included 375 MW of third-party solar PPAs available to be selected each year, which is one half of the 750 MW of solar available each year. The Clean Energy Intervenors argue that the Companies failed to provide any justification for this limitation. To the contrary, however, the allocation of available third-party PPAs is based on historical information and is a reasonable approach to resource planning that is not contrary to the Commission’s Order.

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<sup>29</sup> National Renewable Energy Laboratory, 2021 Annual Technology Baseline (2021), <https://atb.nrel.gov/> (last visited Nov. 23, 2021).

<sup>30</sup> CCEBA Comments, at 10-11.

<sup>31</sup> Order No. 2021-447, at p. 88 (Ordering Paragraph 11).

To determine the volume of solar energy that could potentially be available for procurement at this price, the Companies looked to their historical experience procuring solar at this price. Over the past four years, through the NC Competitive Procurement of Renewable Energy (“CPRE”) Program, the Companies have procured approximately 600 MW of solar at approximately \$38/MWh (or lower) out of a total volume procured of 1,185 MW. Furthermore, the 600 MW of solar procured at or below \$38/MWh represents only 10% of the total 6,115 MW of solar projects that were bid into CPRE Tranches 1 and 2. Based on this information, it seems reasonable to assume for resource planning purposes that the Companies could procure 375 MW of solar at \$38/MWh each year over the next 15 years. In reality, however, it is quite uncertain what volume of solar PPAs will be available to the Companies for purchase over the next 15 years and at what price those PPAs may be offered. In addition to the Companies’ historical experience, other factors such as increasing land costs, supply chain and raw materials constraints exacerbated by the recent Covid pandemic, and increasing labor costs are putting upward pressure on solar costs which may reduce the availability of \$38/MWh PPAs even further. Based on the Companies’ historic experience, and evolving market forces, 375 MW each year is an optimistic, but reasonable, expectation. CCEBA’s allegations that this approach is “arbitrary” and “contrary to least cost planning” fails to take into account the realities of the solar market and the Companies’ recent experience in the Carolinas.

Additionally, there is a growing trend across the country for utilities to select a mix of utility-owned cost-of-service solar resources and market-priced solar resources. A mix of cost-based and market-based resources reduces utility customers’ exposure to market prices at the end of the fixed contract period relative to a portfolio that is all market-based. In addition, utility commissions exercise greater financial control and regulatory oversight

over utility-owned assets than non-utility-owned assets, and commissions are better able to ensure such utility-owned assets are operating effectively for customers over their entire operating life cycle. Unlike the utility's revenue requirement, third party contracts cannot be modified by the Commission, and any commercial dispute must be litigated in civil court, which is a time consuming and expensive process. Utility-owned projects act as a hedge to the fluctuating value of solar PPAs and can limit the risk to customers because utility-owned asset costs are known over the life of the asset and decline each year as the asset depreciates.

Furthermore, at the contract expiration, non-utility assets will contract to sell their power to the highest bidder which is not guaranteed to be the utility. As such, utility customers may not have the benefit of that solar any longer or the utility may be required to pay much more than the corresponding utility revenue requirement for similar age facilities. For cost-based utility-owned solar, the cost to customers over the last 10 to 15 years of the utility-owned asset is low (due to the reduced revenue requirement on the depreciated asset) and provides a good hedge against higher market prices. Also, given uncertainty in future environmental regulations over the life of the PPAs, contractually procured solar may not provide the same value to customers as utility owned. One example of this would be PURPA procured solar which does not convey environmental attributes of the solar resource as compared to utility owned solar where such attributes would be owned by the utility and its customers.

Finally, the Clean Energy Intervenors criticize the Companies' methodology for "carrying over" solar classified as "undesignated." This argument should be rejected because the volume of "undesignated" solar has negligible impact on the volume of solar included in the preferred portfolio. Of the 12,000 MW of solar selected in Portfolio C1,

this model limitation impacted 375 MW, or merely three percent, of solar over the 15-year planning horizon.

For all of these reasons, the selectable volume of \$38/MWh PPAs included in the Modified 2020 IRPs is appropriate based on the Companies' historical experience and complies with the requirements of Order No. 2021-447.

**C. Portfolio C1 Minimizes Coal Supply Risk with Selected Natural Gas Resources Providing Carbon Reductions, Reliability, and Near-Term Cost Benefits While Retaining Future Carbon Reduction Flexibility**

The Clean Energy Intervenors generally take issue with the amount of natural gas added in Portfolio C1, and Vote Solar, in particular, suggests that the Companies' preferred portfolio exacerbates carbon stranding risks. As shown below, each of these concerns are unfounded.

**1. *Early Coal Retirement Requires Development of New Natural Gas and Other Firm Dispatchable Generating Resources***

As a threshold matter, it is important to understand that there are tradeoffs required in developing any resource portfolio that aims to significantly reduce carbon in the near term. In order to retire all coal-fired generation at their earliest practicable date, as is contemplated by Portfolio C1, firm, dispatchable replacement generation is required to enable the retirement of coal generation. Dispatchable natural gas generation allows for operational flexibility to assist in the integration of intermittent and variable solar energy. While storage will play a key part in this transition, it is not economically available today at a scale sufficient to reliably replace the entirety of 10,000 MW of retired coal generation. Simply put, in order for the Companies to achieve the accelerated coal unit retirements contemplated by Portfolio C1 while maintaining reliability for customers, the Companies must rely on technologies that are economically available today.

Moreover, some risks do not translate well to simulation through resource planning modeling. While certain risks associated with continued coal generation can be simulated from an economic dispatch perspective through changing fuel and shadow carbon prices, other foreseeable risks associated with coal generating facilities are difficult to put in planning models—such as more stringent environmental regulations, fuel supply and transportation concerns, and workforce constraints—that result from continued reliance on these units further out into the future.

For all of these reasons, the Companies and intervenors agree that accelerated retirement of coal-burning facilities is the preferred path for the Companies and their customers at this time. In sum, while there is uncertainty with every technology, the ability to continue to achieve significant progress on carbon reductions by reducing the exposure to coal generation, readying the fleet to respond to a high variable energy resource portfolio, and continuing to explore the risks and opportunities with new technologies is the most prudent and reasonable path for the Companies, and is represented by Portfolio C1.

**2.**     *New Natural Gas Resources Facilitate the Provision of Low Cost, Reliable, and Flexible Electric Service and aligns with Duke Energy's climate goals*

DEC/DEP Witnesses Glen A. Snider and Dewey S. Roberts discussed the many shortcomings of Vote Solar's position in both pre-filed rebuttal testimony and live hearing testimony for the 2020 IRP. Witnesses Snider and Roberts offered important context regarding the selection of new gas resources in the preferred portfolio, highlighting that they facilitate the Companies' provision of least cost, reliable electricity service, while reducing carbon emissions. Witness Snider also persuasively explained that these resources are compatible with the Companies' progression toward their net zero carbon



goals by 2050.<sup>32</sup> In the near-term, natural gas provides the known and quantifiable resources needed to accelerate coal retirements and keep costs low for customers, while providing the system flexibility and ensuring system reliability.

**3.     *The Modeling Used in the Carbon Stranding Briefing Continues to be Fatally Flawed***

With respect to Vote Solar's more specific arguments regarding carbon stranding, the Companies have previously debunked this analysis as fatally flawed. Vote Solar's comments rely heavily on analysis presented in the Carbon Stranding Briefing prepared by Vote Solar Witness Tyler Fitch and attached to Vote Solar's comments as Appendix 2 ("CS Briefing"). The Carbon Stranding Briefing purports to be nothing more than an "update[ to] the original Carbon Stranding Report" presented by Witness Fitch earlier in this proceeding.<sup>33</sup>

Importantly, the "updated" analysis contained in the Carbon Stranding Briefing makes no material corrections to the flawed modeling or financial analyses relied upon in the original report and, thus, continues to perpetuate the inflated costs and inaccurate representation of the power system operations into the future. To approximate the carbon emissions of the fleet, the Carbon Stranding Briefing, like the Carbon Stranding Report before it, relies on historical data regarding the generation and emissions of different technologies as a predictor for future operations of the system. In other words, the supplemental CS Briefing assumes that a generation unit will operate exactly as it has in the past, with no regard to changes in future load or other resources on the system. This oversimplified assumption results in consistent overstatement of system fleet emissions

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<sup>32</sup> Tr. Vol. 6, at 1586.97-114 (Snider Rebuttal, at 97-114).

<sup>33</sup> Vote Solar Comments, Appendix VS-2 (Carbon Stranding Briefing), at 1.

and thus inflates the inaccurately identified carbon stranding risk. The CS Briefing does not consider the reliability of the system nor does it factor in the cost of any generation alternative, as the Companies demonstrated in the No New Gas Portfolio.

Vote Solar's financial assumptions also work to inflate the cost, utilizing lives longer than those assumed in the IRPs for natural gas assets and using a discount rate inconsistent with utility planning. The CS Briefing's conclusion that the Companies' preferred Portfolio C1, exceeds the Base Case with Carbon Policy Portfolio, the basis of the original Carbon Stranding Report, by \$1 billion is grossly inaccurate because it relies on the same flawed analysis as the original report. For these reasons, the Commission should give little weight to this "updated" analysis.

As discussed in both the 2020 IRPs and Modified 2020 IRPs, near-term, known and proven technologies can and must be used to continue progress to decarbonization and fleet transition, while allowing flexibility to adjust and adapt to changing circumstances as the net zero carbon goal approaches.

**4. *Technology Advancements Currently in Development May Further Reduce Emissions from Natural Gas Generating Facilities***

As it stands today, the lowest capital cost for firm, dispatchable generation resources to meet the capacity needs of the system is natural gas. This technology is well-known and understood, but like many of the resources gaining market share (e.g., solar and energy storage), natural gas combustion generating technology is also evolving and undergoing improvements to ensure these resources are flexible, both operationally, and from a resource planning perspective. Combustion turbine developers are already producing turbines capable of utilizing blends of hydrogen while working to improve that capability to 100 percent operations on zero carbon emission fuels for future resources.

These manufacturers are simultaneously developing retrofit packages for their existing resources to reduce emissions and enhance their long-term operability on carbon free fuels.

Low carbon fuels are an important aspect to ensuring longevity of these technologies. Hydrogen is often discussed, not only as a fuel for electric power generation, but also as a source of energy for the entire economy. The Clean Hydrogen Production and Incentives Act,<sup>34</sup> which was introduced in the United States Senate in March 2021, is one example of where the industry is heading, looking to accelerate investment in alternative, carbon-free fuels, and even contemplating hydrogen hubs around the country. In fact, many leaders and organizations in the Companies' service territories are advocating for the Carolinas to be at the forefront of this movement by establishing itself as a hydrogen hub for the United States. Anticipation that these fuel-flexible natural gas CT technologies will have future operational capabilities on carbon-free fuels provides reasonable justification for the Companies to rely on new natural gas resources in the near-term to effectively accelerate the retirement of its coal generation with optimism that these resources can continue to be utilized into the future.

**5.     *The Companies Do Expect That Their Natural Gas Fleet Will Shift Its Mission in Future Years***

While the resources in the preferred portfolio deliver near-term benefits, as other low- and zero-carbon resources are deployed to the system, the operation and utilization of these units will change. High penetrations of variable energy resources such as solar and wind will require the rest of the Companies generating fleet to be flexible and respond to operational intermittency and fully take advantage of the carbon free characteristics of

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<sup>34</sup> Clean Hydrogen Production and Incentives Act, S. 1017 (2021), *available at* <https://www.congress.gov/bill/117th-congress/senate-bill/1017?s=1&r=6>.

these generation types. The retirement of coal assets and the addition of flexible natural gas resources provides both the ramping and start-up and shutdown capabilities needed to respond to swings in net load that are already being seen on high variable energy resource systems throughout the country, including here in the Carolinas. The dispatchability of these resources is also important as a back stand for when those resources relying on uncertain “fuel,” such as solar or wind, may not be available to generate.

In the long run, as newer dispatchable and non-dispatchable resources are brought onto the Companies’ systems, the flexibility of the resource fleet allows these resources to more easily adapt to a change in mission, operating less, giving way to emerging technologies of the time. The use of these resources effectively continues to lower the emissions of the fleet while providing the assurance of reliable power in real time even when solar irradiance is low or the wind is not blowing. Vote Solar points out that gas generation decreases very little over the IRP planning horizon in Portfolio C1.<sup>35</sup> This is, of course, because those resources that will ultimately reduce and offset the need to operate natural gas generation may not be deployed on the system until the latter half of the next decade and even into the 2040s, beyond the IRPs’ planning horizon. Firm, dispatchable gas generation is needed in the near-term to offset retiring firm, dispatchable coal capacity, and must operate more flexibly to enable the increase in renewable energy resources on the system. In addition to being more flexible than coal units, natural gas units have only a fraction of the carbon intensity relative to the coal energy they are replacing. Contrary to Vote Solar’s contentions (and contrary to the assumptions in its Carbon Stranding Report and CS Briefing analysis), the long run mission of these units will change as advanced

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<sup>35</sup> Vote Solar Comments, at 19.

technologies are deployed into the future allowing for both immediate and longer-term reductions in carbon emissions with lower operational risks.

**D. The Companies Support Developing Executable Carbon Compliance Planning in the Companies' Next Comprehensive IRPs**

To address its concerns that the Companies may not be capable of implementing Portfolio C1, Vote Solar recommends that the Commission require the Companies to complete a carbon compliance plan to assess the extent to which the preferred portfolio is reconcilable with the Companies' net-zero emissions goals by 2050 and evaluate any potential costs to ratepayers that could be incurred to achieve net-zero emissions.<sup>36</sup> While the Companies do not believe it is necessary or appropriate for the Commission to define and require completion of a carbon compliance plan as part of its order on the Companies' Modified 2020 IRPs, they generally concur with Vote Solar's comments that additional resource planning focus is needed to develop executable coal retirement planning, replacement generation, and longer-term carbon emissions reductions for *future* IRPs. Such an approach is consistent with the iterative resource planning process set forth in Act 62 and aligns with the Companies' recent Petition for Joint NC/SC Hearing on HB 951 Carbon Plan requesting this Commission to jointly participate in the NCUC's initial review of the Companies' Carbon Plan, which the Companies and NCUC are required to develop pursuant to HB 951.

The carbon reduction goals mandated by HB 951—70% emissions reduction by 2030<sup>37</sup>—are generally consistent with the carbon reduction achieved in the Companies' preferred Portfolio C1. HB 951 directs the Companies and the NCUC to prepare a Carbon

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<sup>36</sup> Comments, Vote Solar, at 10, 26.

<sup>37</sup> HB 951, § 1.

Plan that achieves compliance with those carbon reduction policy goals via the least cost path.<sup>38</sup> Because HB 951 requires the NCUC to approve a Carbon Plan no later than December 31, 2022, the Companies will be engaging in the type of executable carbon reduction-focused resource planning Vote Solar recommends in early 2022. Should the Commission grant the relief requested in the Companies' Petition for Joint NC/SC Hearing on HB 951 Carbon Plan, this Commission will be able to be actively involved in the Companies' preparation of their 2022 Carbon Plans and to ensure that the Carbon Plan appropriately evaluates any potential costs to ratepayers. In addition, the Companies anticipate that the Commission would enter an order requiring the Carbon Plan be used in preparing the Companies' next comprehensive IRPs, which are now targeted to be filed in 2023. In this way, the Companies' already-filed Petition proposes a mechanism for achieving just the sort of analysis Vote Solar has requested that the Commission order in addressing the Companies' Modified 2020 IRPs.

**E. The Commission Did Not Direct the Companies to Modify its EE/DSM Programs as Part of the Modified IRPs**

While the Clean Energy Intervenors argue that the Companies should have artificially increased energy efficiency and demand-side management ("EE/DSM") assumptions used in the Modified IRPs, the intervenors do not actually point to any requirements in Order No. 2021-447 that the Companies failed to address in the Modified IRPs. To the contrary, the Companies demonstrated their ongoing compliance with Order No. 2021-447 on page 37 of the DEC Modified IRP and page 36 of the DEP Modified IRP.

The Companies are committed to pursuing all cost-effective EE/DSM options and maintain ongoing engagement with the DSM Collaborative to ensure their programs are

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<sup>38</sup> *Id.* § 1(1).

industry leading and in accordance with best practices. The comprehensive EE/DSM Market Potential Study (“MPS”) developed by Nexant includes multiple scenarios to assess incremental achievable potential driven by higher avoided energy costs or increased program spending. These MPS scenarios recognize the uncertainty of future avoided costs and program options and are used to develop the base, low and high EE/DSM forecasts and their associated implementation costs. The current modeling methodology of assuming full adoption of the achievable potential as a reduction to the load forecast, provides maximum inclusion of the EE/DSM achievable potential based on the detailed analysis represented in the MPS.

The purpose of developing the Achievable Potential estimates in the MPS is to identify the amount of EE/DSM that can be reasonably included in system planning where reliability is a fundamental requirement. In order to develop an accurate understanding of a utility’s potential for EE/DSM savings, the MPS must be factually grounded, and utilize valid, quantifiable inputs, ideally with data from the utility’s actual customer base and service territory. To avoid introducing bias, these studies should not include unknown or unspecified “technology improvements” or “emerging technologies” as the MPS is based on a “snapshot in time” and future studies will account for any relevant updates. Importantly, reliance on EE/DSM projections that overstate the potential future of energy or demand savings will cause an understatement of the net load forecast and amount of traditional supply side resources required to reliably serve customer load. Efforts to inflate these estimates without sound justification will compromise the accuracy and soundness of the IRPs and thus the reliability of the system.

#### IV. CONCLUSION

The Companies' Modified 2020 IRPs fully satisfy the Commission's directives in Order No. 2021-447 and also conform with the requirements of S.C. Code Ann. § 58-37-40 using methodologies that are well-recognized in the industry. The Companies' Modified 2020 IRPs continue to present comprehensive plans designed to meet the future needs of DEC's and DEP's electric customers reliably, efficiently, and economically, and include the most relevant technologies available for that purpose. Accordingly, the Commission should accept the Companies' Modified 2020 IRPs allowing the Companies to proceed with resource planning/Carbon Plan development in 2022.

The Commission should also select preferred Portfolio C1 as the most reasonable and prudent resource planning portfolio to meet DEC's and DEP's future energy and capacity needs at this time. Portfolio C1 appropriately promotes carbon reduction plans, while ensuring power supply reliability and best balances customer cost and resource planning risk. In 2022, the Companies are planning to engage with South Carolina and North Carolina stakeholders as related to IRP development and develop their respective Carbon Plans pursuant to HB 951—both activities will significantly inform the Companies' 2023 comprehensive IRPs and the transition of their fleet to a lower carbon footprint. Commission approval of the Companies' Modified 2020 IRPs and selection of Portfolio C1 as the preferred plan, will allow the Companies to focus efforts on these forward-looking resource planning efforts rather than further revising their 2020 IRPs with outdated inputs. For all these reasons, the Companies respectfully request that the Commission approve the Companies' Modified 2020 IRPs and selection of Portfolio C1 as the most reasonable and prudent plan.



Respectfully submitted this, the 23<sup>rd</sup> day of November, 2021.

s/Samuel J. Wellborn

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